

Frequency metering with 2 setpoints – 1 Hz up to 500 KHz

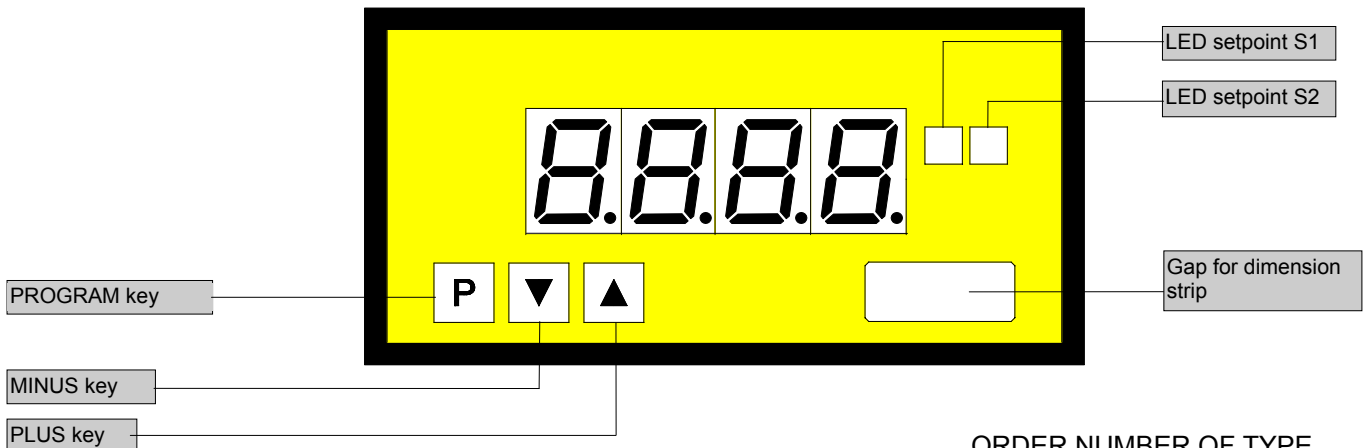
- free scalable indication and setpoints from 0 up to +9999

- standard: sensor supply, min/max memory - option: analogue output

- mounting into panels with thickness up to 50 mm

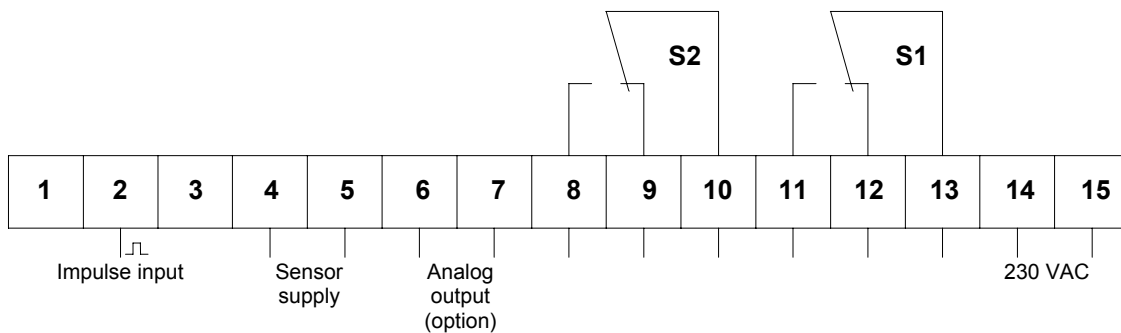
96x48

8888



ORDER NUMBER OF TYPE

PFE 4.307.1522B



Connections for Namur and 3-wire NPN and PNP see last page.

Power supply 115 VAC
(connection via terminal 14 and 15)

PFE 4.307.1422B

Power supply 24 VDC
- **galv. insulated** - (15=plus, 14= minus)

PFE 4.307.1722B

Options

- green LED
- Protection IP54
- Protection IP65
- Plug in terminal with protection IP40
- Plug in terminal with protection IP54
- Plug in terminal with protection IP65
- Sensor supply 10 VDC/20 mA
- Sensor supply 10 VDC/20 mA

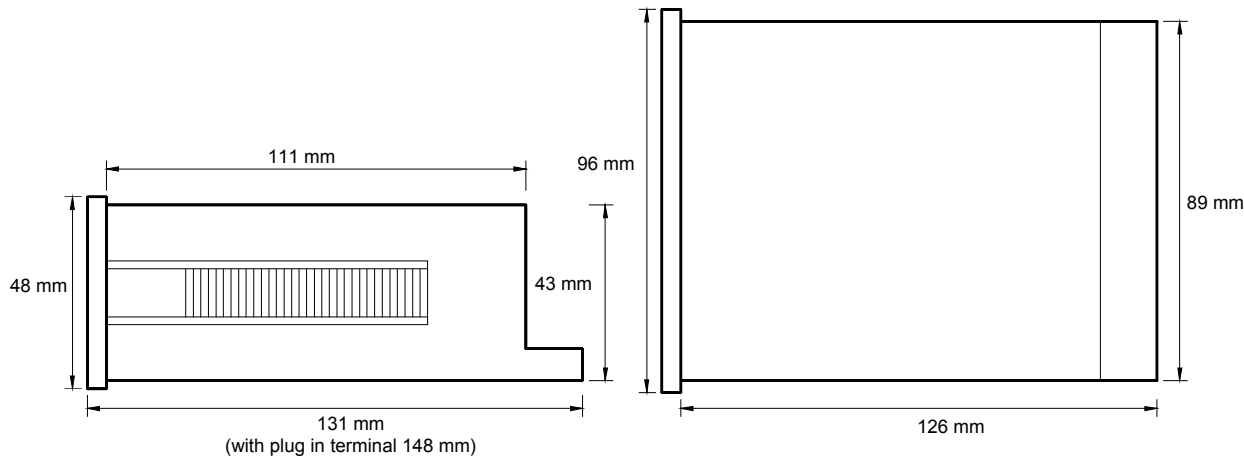
(supply voltage 24 VDC galvanically insulated)

With supply voltage AC and (DC galvanically insulated) the sensor supply is galvanically insulated from the measuring input!

- Analog output 0-10 VDC (12 bit)
- Analog output 0-20 mA/load 500 Ω (12 bit)
- Analog output 4-20 mA/load 500 Ω (12 bit)
- Analog output 0-10 VDC (12 bit) *(supply voltage 24 VDC galvanically insulated)*
- Analog output 0-20 mA/load 500 Ω (12 bit) *(supply voltage 24 VDC galvanically insulated)*
- Analog output 4-20 mA/load 500 Ω (12 bit) *(supply voltage 24 VDC galvanically insulated)*
- Other power supplies on demand

Technical data

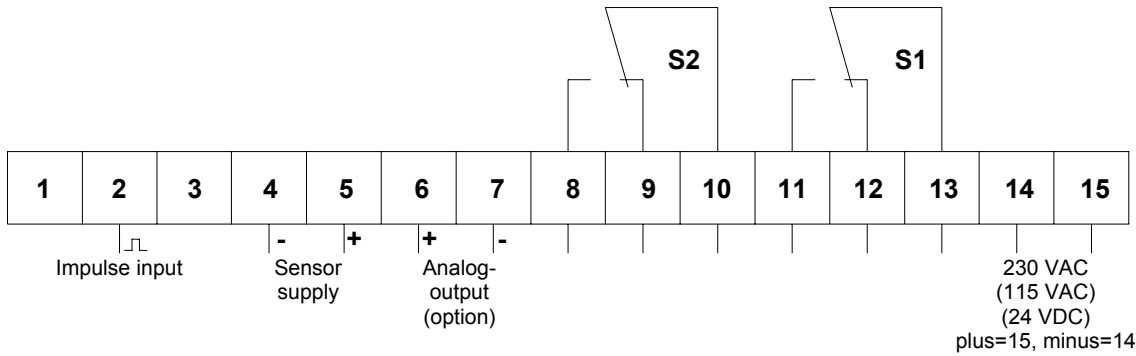
Dimensions	Housing	96 x 48 x 134 mm, including screw terminal
	Assembly cut out	92.0 ^{+0.8} x 45.0 ^{+0.6} mm
	Fastening	special quick plastic clamp proper to fix in wall thickness up to 50 mm
	Housing material	PC/ABS-plastic blend, colour black, UL94V-0
	Protective system	at the front IP40 connection IP00
	Weight	approx. 0.35 kg
	Connection	at the rear side via screw terminals up to 2.5 mm ²
Input	Sensors	Namur, 3-wire pick up, impulse input High/Low level ---> 10 V/< 6 V – U _{in} max. 30 V
	Input resistance	R _i at 10 V ≥ 55 kΩ; at 20 V ≥ 2.5 kΩ; at 30 V ≥ 1.5 kΩ
	Input frequency	1 Hz up to 500 KHz
Output	Sensor supply	24 VDC/50 mA – 10 VDC/20 mA (other sensor supplies/performances on demand)
	Relay output	charge 230 VAC/5 A – 30 VDC/2 A, with ohm resistive burden
	Switching cycles	0.5 * 10 ⁵ at max. contact rating 5 * 10 ⁶ mechanically
	Analogue output	separation appropriate to DIN EN 50178/ Specification appropriate to DIN EN60255 0-10 VDC (12 bit) 0-20 mA (12 bit) - load 500 Ohm 4-20 mA (12 bit) - load 500 Ohm
		} The analogue output is galvanic insulated from the measuring input!
Accuracy	Resolution	0 up to +9999
	Measuring fault	+/-0.04 % of the input frequency
	Measuring principle	Frequency/pulse width measuring
	Temp. drift	~ 40 ppm/K
Power unit	Supply voltage	230/115 VAC +/- 10 % (50-60 Hz), 24 VDC +/-10 % galvanic insulated
	Power consumption	approx. 5 VA
Indication	Display	LED with 7 segments, 14 mm high, red 4-digit = indication 9999
	Overflow	indication of four transversal bars
	Indication time	from 0.2 up to 10.0 seconds adjustable
Ambient conditions	Working temperature	0 up to + 60 °C
	Storing temperature	-20 up to + 80 °C
Housing:		



CE-sign

For unlimited use of the instrument within the directives for electromagnetic compatibility 89/336/EC frequency input wires have to be used with shielded cable and cable's shield connected to earth ground at one end only.

Connection diagram, programming, remarks



Setting

1. Connect the instrument according to the wiring diagram.
2. After power on, the instrument runs into a lamp test and returns back to the standard mode.
3. Connect the desired input frequency to the measuring input.
4. Pressing the **P**-key enters the program mode with indication of „P1“ on the display.
5. Pressing the **P** and **▲** key simultaneously steps through the different program numbers.
6. Pressing **▲** or **▼** key shows the current values.
7. To change values use **▲** or **▼** key.
8. Otherwise the remaining values will be memorized automatically 7 seconds after the last touch of key with leaving program mode.

Additional key-functions in standard mode for indication of min/max values.

Simultaneously pressing of **▼** and **▲** key deletes and actualizes min/max-memory.
▲ key enters max-memory.
▼ key enters min-memory.

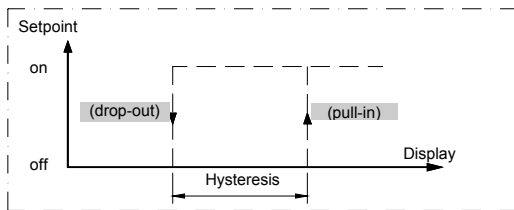
Instructions

After power on the instrument with the inbuilt microcontroller starts with an initial program activating lamp test and readout of memorized parameters in an EEPROM. In case of losing parameters or any defects in hardware the system generates an error message „HELP“. This function prevents damage from the peripherals and human life, totally reset is required. After a new power on, the system remains in lamp test while pressing **P**-key. Then the unit storages the default parameters and is ready for a new programming.

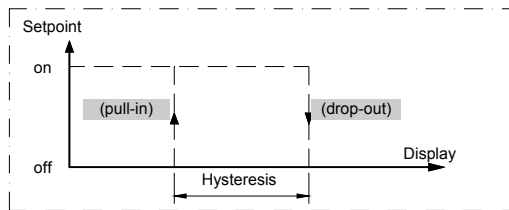
Setpoints

The following diagrams are showing the switching operation of PFE4 relay contacts. The hysteresis is free programmable. There are two kinds of operation:

Example: operation current



Example: quiescent current



Operation current means that the relay contact will be pulled in if reaching the adjusted setpoint.

Quiescent current means that the relay contact will be dropped out if reaching the adjusted setpoint.

Program table, example of programming

Subject to technical alteration – status 03/2006 - PFE471GB

Program table 1

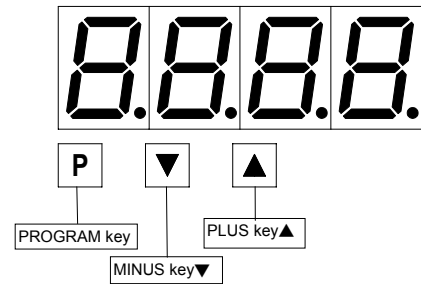
Program-Number (PN)	Function	Remark	Display	Basic parameter after reset
1	Input of desired indication value		0 up to +9999	1000
2	Setting of decimal point	Press ▲ until desired decimal point will be shown.		no decimal point
3	Setting of input frequency	Setting in Khz, decimal point unconsidered.		1.000
4	Setting of decimal point for input frequency	(Minimum one decimal point is necessary) Press ▲ until desired decimal point will be shown		decimal point on first digit
5	Input of final value for analog output	Option	0 up to +9999	1000
6	Input of offset for analog output	Option	0 up to +9999	0
8	Input of display time		0.2 up to 10.0 seconds	1.0
9	Average above 4 measured values	0 = disable 1 = enable	0 / 1	0

Program table 2 (setpoints)

S1	S2	Function	Display	Basic parameter after reset
PN	PN			
61	66	Setpoint	0 up to +9999	500 / 600
62	67	Hysteresis	0 up to +9999	1
63	68	Quiescent current	0	-
		Operating current	1	1

Example for programming

Input: frequency
Measuring value: 0 - 85 KHz
Indication: 0 Hz = 0.0 85.00 KHz=300.0
Display refres. time: 2.0 seconds
Setpoints:
 S1 ==> 60.0 and quiescent current
 relay pull in = 58.0 ==>hysteresis of 2.0
 S2 ==> 150.0 and operating current
 relay drop out = 80.0 ==>hysteresis of 70.0
Analog output:
 0 V output ==> display 0.0 ==> measuring value 0 Hz
 10 V output ==> display 300.0 ==> measuring value 85.00 KHz



The basic adjustments concerning to the following program example are the ground parameters after a total reset occurring through a power on with pressing P-key (see previous page).

Program advices

Pressing the P-key enters **always** the program mode with program number 1. The „P1“ begins to blink in change with the current value after 3 seconds. After further 4 seconds the system leaves the program mode and goes to the standard mode. In Program mode pressing ▼ or ▲ key selects the current values which are free scalable with both the keys. All parameters will be memorized automatically after leaving program mode.

Programming

Switch power on!

Lamp test

Standard mode

Enter program mode

To memorized value with ▼ or ▲.

Set free scalable value

To program number 2 with P and ▲

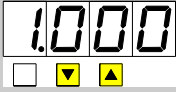
To memorized value with ▼ or ▲.

Set decimal point

To program number 3 with P and ▲

Example for programming

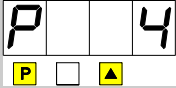
To memorized value with ▼ or ▲.



Set the free scalable input frequency in kHz. Decimal point not considered



To program number 4 with P and ▲.



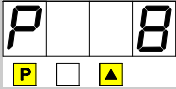
To memorized value with ▼ or ▲.



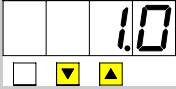
Set decimal point



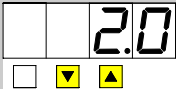
To program number 8 with P and ▲.



To memorized value with ▼ or ▲.



Set display time



The following programming steps are necessary for setpoint programming of S1 and S2 only.

To program number 61 with P and ▲.



To memorized value with ▼ or ▲.



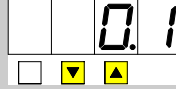
Free scalable value of setpoint S1.



To program number 62 with P and ▲.



To memorized value with ▼ or ▲.



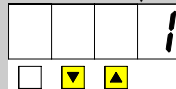
Set hysteresis of S1.



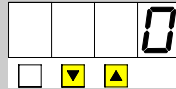
To program number 63 with P and ▲.



To memorized value with ▼ or ▲.



Set quiescent current.



To program number 66 with P and ▲.



To memorized value with ▼ or ▲.



Free scalable value of setpoint S2.



Use P and ▲ to get to program number 67.



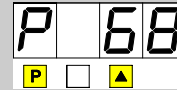
To memorized value with ▼ or ▲.



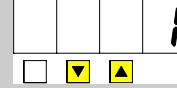
Set hysteresis of S2.



To program number 68 with P and ▲.



To memorized value with ▼ or ▲.

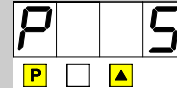


Programming finished.

All programmed values will be memorized after 7 seconds. Jumps back into standard mode automatically.

The program numbers 5 and 6 are available with option analogue output only.

To program number 5 with P and ▲.



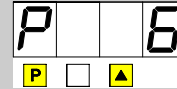
To memorized value with ▼ or ▲.



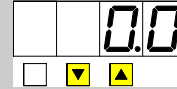
Set free scalable final indication value for analog output.



To program number 6 with P and ▲.



To memorized value with ▼ or ▲.



Programming finished.

All programmed values will be memorized after 7 seconds. Jumps back into standard mode automatically.

Setting possibilities of the jumper field on the rear side.

